



SEQUENCE LISTING

<10> EVANS, RONALD M.

<120> Novel steroid-activated nuclear receptors and uses therefor

<130> SALK2270-5

<140> 10/081,555

<141> 2002-02-20

<150> 09/458,366

<151> 1999-12-09

<160> 09/227,718

<161> 1999-01-08

<170> 09/005,286

<171> 1998-01-09

<180> 43

<190> PatentIn Ver. 2.1

<210> 1

<211> 2068

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (583)..(1884)

<220>

<221> modified_base

<222> (1263)

<223> a, c, t, or g

<400> 1

ggcacgagga gatctagggtt caaattaatg ttgcccttag ttgtaaagga cagagaccct 60
cagactgatg aaatgcgctc agaattactt agacaaagcg gatatttgcc actctcttcc 120
ccttttcctg tgtttttgta gtgaagagac ctgaaagaaa aaagtaggga gaacataatg 180
agaacaaata cggtaatctc ttcatttgct agttcaagtg ctggacttgg gacttaggag 240
gggcaatgga gccgcttagt gcctacatct gacttggact gaaatatagg tgagagacaa 300
gattgtctca tatccgggga aatcataacc tatgactagg acgggaagag gaagcactgc 360
ctttacttca gtgggaatct cggcctcagc ctgcaagcca agtggttcaca gtgagaaaag 420
caagagaata agctaatact cctgtcctga acaaggcagc ggctccttgg taaagctact 480
ccttgatcga tcctttgcac cggattgttc aaagtggacc ccaggggaga agtcggagca 540
aagaacttac caccaagcag tccaagaggc ccagaagcaa ac ctg gag gtg aga 594
Leu Glu Val Arg

ccc	aaa	gaa	agc	tgg	aac	cat	gct	gac	ttt	gta	cac	tgt	gag	gac	aca	642
Pro	Lys	Glu	Ser	Trp	Asn	His	Ala	Asp	Phe	Val	His	Cys	Glu	Asp	Thr	
5					10					15					20	
gag	tct	gtt	cct	gga	aag	ccc	agt	gtc	aac	gca	gat	gag	gaa	gtc	gga	690
Glu	Ser	Val	Pro	Gly	Lys	Pro	Ser	Val	Asn	Ala	Asp	Glu	Glu	Val	Gly	
				25					30					35		
ggt	ccc	caa	atc	tgc	cgt	gta	tgt	ggg	gac	aag	gcc	act	ggc	tat	cac	738
Gly	Pro	Gln	Ile	Cys	Arg	Val	Cys	Gly	Asp	Lys	Ala	Thr	Gly	Tyr	His	
			40					45					50			
ttc	aat	gtc	atg	aca	tgt	yaa	gga	tgc	aag	ggc	ttt	ttc	agg	agg	gcc	786
Phe	Asn	Val	Met	Thr	Cys	Glu	Gly	Cys	Lys	Gly	Phe	Phe	Arg	Arg	Ala	
		55					60					65				
atg	aaa	cgc	aac	gcc	cgg	ctg	agg	tgc	ccc	ttc	cgg	aag	ggc	gcc	tgc	834
Met	Lys	Arg	Asn	Ala	Arg	Leu	Arg	Cys	Pro	Phe	Arg	Lys	Gly	Ala	Cys	
	70					75					80					
gag	atc	acc	cgg	aag	acc	cgg	cga	cag	tgc	cag	gcc	tgc	cgc	ctg	cgc	882
Glu	Ile	Thr	Arg	Lys	Thr	Arg	Arg	Gln	Cys	Gln	Ala	Cys	Arg	Leu	Arg	
85					90					95				100		
aag	tgc	ctg	gag	agc	ggc	atg	aag	aag	gag	atg	atc	atg	tcc	gac	gag	930
Lys	Cys	Leu	Glu	Ser	Gly	Met	Lys	Lys	Glu	Met	Ile	Met	Ser	Asp	Glu	
				105					110					115		
gcc	gtg	gag	gag	agg	cgg	gcc	ttg	atc	aag	cgg	aag	aaa	agt	gaa	cgg	978
Ala	Val	Glu	Glu	Arg	Arg	Ala	Leu	Ile	Lys	Arg	Lys	Lys	Ser	Glu	Arg	
			120					125					130			
aca	ggg	act	cag	cca	ctg	gga	gtg	cag	ggg	ctg	aca	gag	gag	cag	cgg	1026
Thr	Gly	Thr	Gln	Pro	Leu	Gly	Val	Gln	Gly	Leu	Thr	Glu	Glu	Gln	Arg	
		135					140					145				
atg	atg	atc	agg	gag	ctg	atg	gac	gct	cag	atg	aaa	acc	ttt	gac	act	1074
Met	Met	Ile	Arg	Glu	Leu	Met	Asp	Ala	Gln	Met	Lys	Thr	Phe	Asp	Thr	
	150					155					160					
acc	ttc	tcc	cat	ttc	aag	aat	ttc	cgg	ctg	cca	ggg	gtg	ctt	agc	agt	1122
Thr	Phe	Ser	His	Phe	Lys	Asn	Phe	Arg	Leu	Pro	Gly	Val	Leu	Ser	Ser	
165					170					175				180		
ggc	tgc	gag	ttg	cca	gag	cct	ctg	cag	gcc	cca	tcg	agg	gaa	gaa	gct	1170
Gly	Cys	Glu	Leu	Pro	Glu	Pro	Leu	Gln	Ala	Pro	Ser	Arg	Glu	Glu	Ala	
				185					190					195		
gcc	aag	tgg	agc	cag	gtc	cgg	aaa	gat	ctg	tgc	tct	ttg	aag	gtc	tct	1218
Ala	Lys	Trp	Ser	Gln	Val	Arg	Lys	Asp	Leu	Cys	Ser	Leu	Lys	Val	Ser	
			200					205					210			
ctg	caa	gct	gcg	ggg	gga	gga	tgg	cag	tgt	ctg	gaa	cta	caa	acn	ccc	1266
Leu	Gln	Ala	Ala	Gly	Gly	Gly	Trp	Gln	Cys	Leu	Glu	Leu	Gln	Xaa	Pro	
		215					220					225				
agc	cga	cag	tgg	cgg	aaa	gag	atc	ttc	tcc	ctg	ctg	ccc	cac	atg	gct	1314
Ser	Arg	Gln	Trp	Arg	Lys	Glu	Ile	Phe	Ser	Leu	Leu	Pro	His	Met	Ala	

230	235	240	
gac atg tca acc tac atg ttc aaa ggc atc atc agc ttt gcc aaa gtc			1362
Asp Met Ser Thr Tyr Met Phe Lys Gly Ile Ile Ser Phe Ala Lys Val			
245	250	255	260
atc tcc tac ttc agg gac ttg ccc atc gag gac cag atc tcc ctg ctg			1410
Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln Ile Ser Leu Leu			
	265	270	275
aag ggg gcc gct ttc gag ctg tgt caa ctg aga ttc aac aca gtg ttc			1458
Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe Asn Thr Val Phe			
	280	285	290
aac gcg gag act gga acc tgg gag tgt ggc cgg ctg tcc tac tgc ttg			1506
Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu Ser Tyr Cys Leu			
	295	300	305
gaa gac act gca ggt ggc ttc cag caa ctt cta ctg gag ccc atg ctg			1554
Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Glu Glu Pro Met Leu			
	310	315	320
aaa ttc cac tac atg ctg aag aag ctg cag ctg cat gag gag gag tat			1602
Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His Glu Glu Glu Tyr			
	325	330	335
gtg ctg atg cag gcc atc tcc ctc ttc tcc cca gac cgc cca ggt gtg			1650
Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp Arg Pro Gly Val			
	345	350	355
ctg cag cac cgc gtg gtg gac cag ctg cag gag caa ttc gcc att act			1698
Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln Phe Ala Ile Thr			
	360	365	370
ctg aag tcc tac att gaa tgc aat cgg ccc cag cct gct cat agg ttc			1746
Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro Ala His Arg Phe			
	375	380	385
ttg ttc ctg aag atc atg gct atg ctc acc gag ctc cgc agc atc aat			1794
Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu Arg Ser Ile Asn			
	390	395	400
gct cag cac acc cag cgg ctg ctg cgc atc cag gac ata cac ccc ttt			1842
Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp Ile His Pro Phe			
	405	410	415
gct acg ccc ctc atg cag gag ttg ttc ggc atc aca ggt agc			1884
Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr Gly Ser			
	425	430	
tgagcggctg ccttgggtga caccttcgag aggcagccag acccagagcc ctctgagccg			1944
gcactcccgg gccaaagacag atggacactg ccaagagccg acaatgccct gctggcctgt			2004
ctccctaggg aattcctgct atgacagctg gctagcattc ctcaggaagg acatgggggtg			2064
cccc			2068

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<220>
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 <223> Threonine

<400> 2

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Cys	Glu	Asp	Thr	Glu	Ser	Val	Pro	Gly	Lys	Pro	Ser	Val	Asn	Ala	Asp
			20					25					30		
Glu	Glu	Val	Gly	Gly	Pro	Gln	Ile	Cys	Arg	Val	Cys	Gly	Asp	Lys	Ala
		35					40					45			
Thr	Gly	Tyr	His	Phe	Asn	Val	Met	Thr	Cys	Glu	Gly	Cys	Lys	Gly	Phe
	50					55					60				
Phe	Arg	Arg	Ala	Met	Lys	Arg	Asn	Ala	Arg	Leu	Arg	Cys	Pro	Phe	Arg
65					70					75					80
Lys	Gly	Ala	Cys	Glu	Ile	Thr	Arg	Lys	Thr	Arg	Arg	Gln	Cys	Gln	Ala
				85					90					95	
Cys	Arg	Leu	Arg	Lys	Cys	Leu	Glu	Ser	Gly	Met	Lys	Lys	Glu	Met	Ile
		100						105					110		
Met	Ser	Asp	Glu	Ala	Val	Glu	Glu	Arg	Arg	Ala	Leu	Ile	Lys	Arg	Lys
		115					120					125			
Lys	Ser	Glu	Arg	Thr	Gly	Thr	Gln	Pro	Leu	Gly	Val	Gln	Gly	Leu	Thr
	130					135					140				
Glu	Glu	Gln	Arg	Met	Met	Ile	Arg	Glu	Leu	Met	Asp	Ala	Gln	Met	Lys
145					150					155					160
Thr	Phe	Asp	Thr	Thr	Phe	Ser	His	Phe	Lys	Asn	Phe	Arg	Leu	Pro	Gly
				165					170					175	
Val	Leu	Ser	Ser	Gly	Cys	Glu	Leu	Pro	Glu	Pro	Leu	Gln	Ala	Pro	Ser
			180					185					190		
Arg	Glu	Glu	Ala	Ala	Lys	Trp	Ser	Gln	Val	Arg	Lys	Asp	Leu	Cys	Ser
		195					200					205			
Leu	Lys	Val	Ser	Leu	Gln	Ala	Ala	Gly	Gly	Gly	Trp	Gln	Cys	Leu	Glu
	210					215					220				
Leu	Gln	Xaa	Pro	Ser	Arg	Gln	Trp	Arg	Lys	Glu	Ile	Phe	Ser	Leu	Leu
225					230					235					240
Pro	His	Met	Ala	Asp	Met	Ser	Thr	Tyr	Met	Phe	Lys	Gly	Ile	Ile	Ser
				245					250					255	

Phe Ala Lys Val Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln
 260 265 270
 Ile Ser Leu Leu Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe
 275 280 285
 Asn Thr Val Phe Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu
 290 295 300
 Ser Tyr Cys Leu Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Leu
 305 310 315 320
 Glu Pro Met Leu Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His
 325 330 335
 Glu Glu Glu Tyr Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp
 340 345 350
 Arg Pro Gly Val Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln
 355 360 365
 Phe Ala Ile Thr Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro
 370 375 380
 Ala His Arg Phe Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu
 385 390 395 400
 Arg Ser Ile Asn Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp
 405 410 415
 Ile His Pro Phe Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr
 420 425 430
 Gly Ser

<210> 3

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Putative SXR
 response element from the steroid hydroxylase,
 rCYP3A1

<400> 3

tagacagttc atgaagttca tctac

25

<210> 4

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Putative SXR
 response element from the steroid hydroxylase,
 rCYP3A2

<400> 4
taagcagttc ataaagttca tctac 25

<210> 5
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Putative SXR
response element from the steroid hydroxylase,
rUGT1A6

<400> 5
actgtagttc ataaagttca catgg 25

<210> 6
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Putative SXR
response element from the steroid hydroxylase,
rbCYP2C1

<400> 6
caatcagttc aacagggttc accaat 26

<210> 7
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Putative SXR
response element from the steroid hydroxylase,
rP450R

<400> 7
cacaggtgag ctgaggccag cagcaggtcg aaa 33

<210> 8
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Putative SXR
response element from the steroid hydroxylase,
rCYP2A1

<400> 8
gtgcaggttc aactggaggt caacatg 27

<210> 9
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Putative SXR
 response element from the steroid hydroxylase,
 rCYP2A2

<400> 9
 gtgctgggttc aactggaggt cagtatg

27

<210> 10
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Putative SXR
 response element from the steroid hydroxylase,
 rCYP2C6

<400> 10
 agtctagttc agtgggggtt cagtctt

27

<210> 11
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Putative SXR
 response element from the steroid hydroxylase,
 hCYP2E1

<400> 11
 gagatgggttc aaggaagggt cattaac

27

<210> 12
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Direct repeat
 with spacer of 0 nucleotides

<400> 12
 catagtcagg tcaaggtcag atcaac

26

<210> 13
 <211> 27

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 1 nucleotides

<400> 13
catagtcagg tcataggtca gatcaac

27

<210> 14
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 2 nucleotides

<400> 14
catagtcagg tcaataggtc agatcaac

28

<210> 15
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 3 nucleotides

<400> 15
catagtcagg tcatataggt cagatcaac

29

<210> 16
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 4 nucleotides

<400> 16
catagtcagg tcatataagg tcagatcaac

30

<210> 17
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 5 nucleotides

<400> 17
catagtcagg tcatatatag gtcagatcaa c 31

<210> 18
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 6 nucleotides

<400> 18
catagtcagg tcatatataa ggtcaagatc aac 33

<210> 19
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 7 nucleotides

<400> 19
catagtcagg tcatatatat aggtcagatc aac 33

<210> 20
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 10 nucleotides

<400> 20
catagtcagg tcatatatat ataaggtcag atcaac 36

<210> 21
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Direct repeat
with spacer of 15 nucleotides

<400> 21
catagtcagg tcatagtagt agtagtagag gtcagatcaa c 41

<210> 22
<211> 17
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Example of a response element suitable for practice of the invention method

<220>

<221> modified_base

<222> (7)..(11)

<223> This region may encompass 5, 4 or 3 nucleotides, independently selected from a, c, t or g

<400> 22

agttcannnn ntgaact

17

<210> 23

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Example of a response element suitable for practice of the invention method

<220>

<221> modified_base

<222> (7)..(12)

<223> a, c, t or g

<400> 23

tgaactnnnn nnaggtca

18

<210> 24

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 24

tgaactcaaa ggaggtca

18

<210> 25

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Inverted repeat response element with spacer of 0 nucleotides

<400> 25
agcttaggtc atgaccta

18

<210> 26
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Inverted
repeat response element with spacer of 1
nucleotides

<400> 26
agcttaggtc agtgaccta

19

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Inverted
repeat response element with spacer of 2
nucleotides

<400> 27
agcttaggtc acgtgaccta

20

<210> 28
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Inverted
repeat response element with spacer of 3
nucleotides

<400> 28
agcttaggtc acagtgcct a

21

<210> 29
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Inverted
repeat response element with spacer of 4
nucleotides

<400> 29
agcttaggtc acatgtgacc ta

22

<210> 30
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Inverted
 repeat response element with spacer of 5
 nucleotides

<400> 30
 agcttaggtc acactgtgac cta

23

<210> 31
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Inverted
 repeat response element with spacer of 6
 nucleotides

<400> 31
 agctttgaac tcaaaggagg tca

23

<210> 32
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: IR-M

<400> 32
 agcttacgtc atgacgta

18

<210> 33
 <211> 33
 <212> DNA
 <213> Homo sapiens

<400> 33
 tagaatatga actcaaagga ggtcagtgag tgg

33

<210> 34
 <211> 33
 <212> DNA
 <213> Homo sapiens

<400> 34
 tagaatatga actcaaagga ggtaagcaaa ggg

33

<210> 35
<211> 32
<212> DNA
<213> Homo sapiens

<400> 35
tagaatatta actcaatgga ggcagtgagt gg

32

<210> 36
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide for PCR

<400> 36
gagcaattcg ccattactct gaagt

25

<210> 37
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide for PCR

<400> 37
gtccttgagg tcttctacct ttctc

25

<210> 38
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide for PCR

<400> 38
gacgatttgg atctggacat gttgg

25

<210> 39
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide for PCR

<400> 39
tgaacttcac gaact

15

<210> 40
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 40
 gttttcatct gagcggtccat cagct

25

<210> 41
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 41
 Arg Gly Lys Thr Cys Ala
 1 5

<210> 42
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<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 42
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15

<210> 43
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<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 43
 acaacttcat gaact

15